Chandler • Arizona
Where Values Make The Difference

Civil Engineering Underground Retention Storage Tank Review Checklist

Log No.: _____

Project:	
Location:	

Legend	
/	Requirement satisfied.
O	Requirement not satisfied.
?	Unable to determine status, more information is required.
X	Not applicable.

Review #	Reviewed By	Date
1		
2		
3		
4		
5		

NOTE: The underground storage of storm water may be allowed in commercial or industrial sites. Underground storage is not allowed in apartment, condominium, townhome, or other residential developments. The requirements outlined below are from Chapter 5.6 of the City of Chandler *Technical Design Manual 3 - Storm Drainage System Design*.

Item	Requirement	Comments
1.	The installation of corrugated metal pipe with aluminum coating for underground retention storage tank systems shall be in accordance with MAG Specification No.621. Excavation, bedding, and backfill shall be in accordance with MAG Specification No.601 and the material per MAG Specification No. 760.	
2.	A report is required, prepared by a soils engineer registered in Arizona, showing the following information at each proposed location of the underground storage tank system(s). The report must include:	

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Item	Requirement	Comments
	A. Soil boring results to a depth of at least 10 feet below the bottom of the proposed storage tank(s), at each location, showing the depth of the proposed installation and the depth to groundwater. B. Soil conditions at each location of underground storage tank system(s). Include in the report and also show on the plans the following data: 1) Soil pH 2) Resistivity in ohm-cm 3) Chloride concentration in ppm 4) Sulfate concentration in ppm 5) Moisture content	
3.	Submit documentation demonstrating that the design life of the lining and coating of the underground retention storage tank system(s)will be greater than 50 years. The methodology for determining the soil side service life of the corrugated steel pipe must conform to the *Soil Side Durability of Corrugated Steel Pipe, Final Report 1991*, prepared for the National Corrugated Steel Pipe Association, or, the Estimated Average Service Life Charts in Appendix B of the City of Chandler *Technical Design Manual 3 - Storm Drainage System Design*. A. Show details for the lining and coating of the corrugated metal pipe storage tank(s) on the plans. B. Submit a letter from the soils engineer stating that the pipe material, lining, and coating are suitable for the soil conditions at the site and the pipe will last at least 50 years based on the soils conditions encountered.	
4.	Submit calculations showing traffic and load bearing capacity of the underground retention storage tank system(s). A. Show the pipe gauge and corrugation size for CMP on the plans. B. Show the D-Load for RCP on the plans. C. Meet the manufacturer's minimum cover requirements for HDPE pipe. These minimum cover requirements may have to be exceeded in order to install the required access manholes.	

Item	Requirement	Comments
5.	Provide a minimum of two access points for each underground retention storage tank. A. The access shall consist of 48-inch manhole shafts with 30-inch manhole frames and covers at grade, per City of Chandler Standard Detail C-400, except that the covers shall show "RETENTION TANK" instead of "SANITARY SEWER". Grated covers to allow for the inlet of surface storm water run-off may also be used in lieu of the solid covers. B. The access must include a fixed ladder, anchored to the end wall of the storage tank. A structural engineer or the manufacturer must certify the structural integrity of the ladder installation. C. Provide concrete collars, per City of Chandler Standard Detail C-401, for all manholes located in pavement areas or subject to wheel loads.	
6.	Show a backfill detail on the plans. The detail shall include the material and compaction requirements and must address backfill and compaction under the pipe haunches, to the springline of the pipe.	
7.	Include a note on the plans specifying that all joints in the underground retention storage tank system(s) will be water-tight, manufactured joints.	
8.	Provide a minimum of 3 feet of cover, to the bottom of the base of the pavement structure, over the underground retention storage tank system(s) located in traffic areas. Provide a minimum of 3 feet of cover over the storage tank(s) in non-pavement areas.	
9.	Provide a detail on the plans showing the connection of the storage tank drain pipe into the interceptor chamber of the dry well. The invert of the drain pipe must be at or above the elevation of the inlet to the 4-inch cross-over pipe to the dry well chamber.	

Item	Requirement	Comments
10.	The drain pipe from the storage tank to the drywell interceptor chamber cannot be used to convey water from a retention basin into the underground storage tanks. Any water conveyed from a retention basin, road or parking surface is to be conveyed via storm drain pipe tied independently in to the underground storage tank. Surface run-off water can also be directly discharged in to underground storage tanks when grated lids are substituted for the solid covers at any of the manhole access points, noted in 5.A above.	